

**REMARKS:**

INFORMATION DISCLOSURE STATEMENT FILED AUGUST 3, 2001

The Applicants filed an Information Disclosure Statement (IDS) on August 3, 2001. The Applicants received a return  
5 receipt postcard (MPEP 503) indicating that the Office had received the IDS. However, a copy of the PTO-1449 signed by the Examiner did not accompany the Office Action mailed February 13, 2003 or the previous Office Action. Therefore, the Applicants respectfully request that the Examiner  
10 provide a copy of the corresponding PTO-1449 indicating that he has considered the August 3, 2001 IDS.

**DRAWING AMENDMENTS**

The Examiner objected to the drawings for failing to comply with 37 CFR 1.84(p)(5) because they include the reference  
15 number 412, which the Examiner asserts is not mentioned in the description. The Applicants submit herewith a replacement drawing sheet 4) in which the reference number 412 has been eliminated from Fig. 4D.

**SPECIFICATION OBJECTIONS**

20 The Examiner objected to the amendment filed on 1/30/2003 as introducing new matter. Specifically, the Examiner states that there is no support for the formation of lined trenches. The Applicants have reviewed the amendment filed on 1/30/2003 and can find no amendment of any portion of the  
25 specification. Furthermore, a preliminary amendment submitted with the application as filed added the references to "lining" the trenches. A petition to have the preliminary amendment considered part of the original disclosure was granted on August 13, 2001 (see Paper No. 5).  
30 Therefore, the Applicants respectfully request that the Examiner withdraw the objection.

**CLAIM AMENDMENTS**

To expedite prosecution, the Applicants have amended claims 1 and 16 to recite filling one or more selected trenches

with an etch-stop material to form one or more etch-stop trenches. The applicants submit that support for this amendment can be found in the specification in Figs. 1B-1C, 2B-2C and 4B-4C and corresponding portions of the description. As such, no new matter has been entered with this amendment.

In addition, to expedite prosecution, the Applicants have amended claim 16 to delete "to define one or more structures" at the end of part ii) and to recite forming one or more structures on one or more of the selected areas of the device material that were exposed. Support for this feature can be found in the specification e.g., at Figs. 2E and page 6, lines 32-35. Furthermore, the Applicants submit that this amendment does not narrow the scope of any limitation or element of claim 16 within the meaning of the decision in *Festo Corp. v. Shoketsu Kogyo Kabushiki Co., Ltd.*, 234 F3d 558, 566, 56 U.S.P.Q.2d 1865 (Fed. Cir. 2000) 535 U.S. 722, 152 L. Ed. 2d 944, 122 S. Ct. 1831, (2002).

The Applicants reserve the right to pursue the claims as they existed prior to this amendment in a later filed continuation application.

Furthermore, the Applicants submit that these amendments merely make explicit that which was implicit in claims 1 and 16 as originally filed. As such, no new matter has been added with this amendment.

#### CLAIM REJECTIONS

##### 35 USC 112

The Examiner has rejected claims 1-16, 23 and 24 under 35 USC 112, second paragraph, as being indefinite. The Examiner states that the phrase "defining one or more structures between the selected trenches" is unclear in the light of the specification because it cannot be determined what the structures are and how they are "defined". The Examiner also argues that it is unclear how any portion is

released since etching destroys the region between the trenches.

The Applicants submit that the specification shows three ways of "defining" structures. Figs. 1A-1E show that  
5 structures 120 may be defined by removing portions of an etch-stop layer 110 overlying a device layer 102 and etching away the exposed portions of the device layer 102. Note that page 5, lines 16-18, specifically state that the patterning of the etch-stop material 110 defines one or more  
10 structures 120. The Etching away the exposed portions of the device layer releases the structures 120 formed from the etch-stop layer 110. Furthermore, as shown in Figs. 2A-2F, structures 222 may be defined forming a patterned structural layer over exposed portions of a device layer 202 (see page  
15 7, lines 7-8 and 21-23). Figs. 4A-4F show that a structure 415 may be defined by a combination of etch-stop layers 403, 413 and an upper device layer 402.

Note that in each case, the structure is defined between trenches filled with etch-stop material. Also note that in  
20 each case it is clear how the structures are released once they have been defined. Therefore, the Applicants submit that the phrase "defining one or more structures between the selected trenches" when read in light of the specification is broad enough that it encompasses at least these three  
25 embodiments and their equivalents. The Applicants point out that mere breadth is not indefiniteness (see MPEP 2173.04).

Furthermore, to expedite prosecution, the Applicants submit have amended claim 16 to delete "define one or more structures" at the end of part ii) and to recite forming one  
30 or more structures on one or more of the selected areas of the device material that were exposed. Support for this feature can be found in the specification in the section bridging page 6, line 32 to page 7, line 23 and Figs. 2D-2F. As such, no new matter has been added by this amendment.  
35 The Applicants submit that these amendments clarify where

the structures are formed and how etching the device material releases the structures without destroying them.

USC 102 - Shaw et al.

The Examiner has rejected claims 1-5, 7, 9, 10-16, 23 and 24  
5 under 35 USC 102(b) as being anticipated by U.S. Patent  
5,426,070 to Shaw et al. (hereinafter Shaw). In rejecting  
the claims, the Examiner states that Shaw teaches a method  
for the controlled release of structures as follows:  
Trenches are formed in a silicon device layer (Fig. 1E).  
10 Structures are defined on each side of the trench. An etch-  
stop material (silicon dioxide) is deposited in the trench  
and over the surface of the device layer (Fig. 1F).  
Openings are formed in the etch-stop material (Fig. 1G).  
The surface of the device layer is masked (Fig. 1H), and the  
15 structure is released by etching (Fig. 1I). The etching  
undercuts a portion of the etch-stop material (Fig. 1I).  
The layer of device material is disposed between two layers  
of etch-stop material (Fig. 1I). A structural layer is  
formed proximate to the device layer and is protected from  
20 the silicon layer by the etch-stop layer (Fig. 1J). A  
portion of this structural layer is released, and contains  
two sub layers (Fig. 1J).

The Applicants respectfully traverse the rejections. The  
Applicants have amended claims 1 and 16 to recite that the  
25 trenches are filled. The Examiner has admitted that Shaw  
does not teach "filling" the trenches with an etch-stop  
material as recited in claims 1 and 16. Since Shaw doesn't  
teach filling the trenches, he can't and doesn't teach  
etching portions of the device layer between the filled  
30 trenches as recited in claims 1 and 16.

Thus, for the above reasons, the Applicants submit that Shaw  
does not teach or suggest all of the limitations of  
independent claims 1 and 16. As such, claims 1 and 16  
define an invention suitable for patent protection.

Furthermore, dependent claims 2-15, 23 and 24 depend, either directly or indirectly, from claims 1 or 16 and recite additional features therefor. As such, and for the same reasons set forth above with respect to claims 1 and 16, the Applicants submit that these dependent claims define an invention suitable for patent protection.

CLAIM REJECTIONS 35 USC 103

Shaw et al.

The Examiner has rejected claims 6 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Shaw. In making the rejection, the Examiner states that Shaw teaches the method substantially as claimed but uses reactive ion etching instead of wet etching as recited in claim 6. Furthermore, the Examiner states that Shaw teaches the use of a crystalline silicon substrate instead of a silicon-on-insulator substrate as recited in claim 8.

With respect to claim 6 The Examiner argues that U.S. Patent 5,084,419 to Sakao (hereinafter Sakao) teaches, at col. 5, lines 17-24, that wet etching and dry etching are art recognized equivalents for the purpose of etching grooves in silicon. The Examiner concludes that it is prima facie obvious to substitute one art-recognized equivalent for another.

With respect to claim 8, the Examiner argues that claim 8 is obvious since it is common practice to fabricate a semiconductor device using a silicon-on-insulator substrate as a starting material. The Examiner cites *Silicon Processing for the VSLI Era*, vol. 4, pp 14-15, in support of his argument.

The Applicants respectfully traverse the rejection. As described above, Shaw does not teach "filling" the trenches or etching portions of the device layer between the filled trenches as recited in claim 1. Claims 6 and 8 depend directly from claim 1. Since no cited combination of Shaw

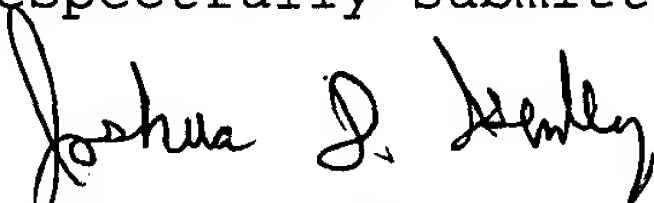
with Sakao or skill in the art teaches or suggests claim 1,  
no cited combination of Shaw with skill in the art teaches  
or suggests claims 6 or 8 and a prima facie case of  
obviousness is not present. Therefore, the applicants  
5 submit that claims 6 and 8 are not obvious over Shaw and  
define an invention suitable for patent protection.

CONCLUSION

In view of the above amendments and remarks, the Applicants  
submit that all pending claims are allowable over the prior  
10 art of record and that none of the pending claims are  
indefinite. Therefore, the Applicants respectfully request  
that the Examiner reconsider the application and issue a  
Notice of Allowance in the next Office Action.

Respectfully submitted,

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